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The Utilisation of Rumen Contents as Animal Fodder

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As a potential source of animal food, the rumen contents from slaughtered animals appear to be well worth investigation. At many slaughterhouses the rumen contents are discarded for use as manure, but this may represent a considerable wastage as the rumen from a single cow may often contain as much as 66 lb. of fodder, or 9 lb. of dry matter. In a slaughterhouse dealing with 500 cattle per day, this would represent a daily loss of over two tons of dry food, which might be well worth salvaging.

Fodder obtained from the first stomach of slaughtered ruminants was employed by the Germans during the war of 1914-18, and also in Poland and in France. Post (1918) has described the treatment of fresh rumen contents and its feeding to horses. His material, which consisted largely of chopped hay, lucerne and straw, was spread out on a paved surface and aerated by tossing about with forks and shovels, after which it is claimed the forage completely lost its sour smell in two or three hours. For a few days this aerated material was fed to horses along with chopped sugar beet, potato peelings and a handful of oats; thereafter the proportion of rumen material was increased to 40 per cent. (by weight) of the total ration, or even more. Unfortunately Post does not give the moisture content of his "well ventilated" rumen contents, or of the other constituents of the ration, so it is difficult to determine just what proportion of the total dry matter fed was provided by the rumen material.

According to the report of this worker, in Paris alone about 34·5 tons (35,000 kg.) of fodder were recovered per day and either fed directly or dried by tossing in a current of air or by exposure to the sun, when it could be kept for several days and even transported. The horses to which it was fed consumed it with avidity and were able to do a considerable amount of arduous haulage work without showing any digestive disturbances or other ill effects.

Honcamp *et al.* (1919) have published data for the composition and digestibility for sheep of molassed rumen material and have quoted figures obtained by Morgen (1917) for two similar foods. These results are summarised in Table I.

TABLE I: COMPOSITION AND DIGESTIBILITY OF MOLASSED RUMEN CONTENTS

	Crude Nutrients. Per cent.			Digestibility. Per cent.		
	Honcamp *et al.*	Morgen Sample I	Morgen Sample II	Honcamp *et al.*	Morgen Sample I	Morgen Sample II
Organic matter	86·02	70·39	67·14	63·3	55·8	64·9
Crude protein	23·03	14·50	13·12	64·5	59·6	69·5
Ether extract..	2·19	2·90	2·34	42·5	81·8	89·5
Fibre ..	14·96	12·81	12·71	37·9	25·2	22·8
N-free extract	45·84	40·18	38·97	73·9	66·1	75·1

In order to obtain information regarding the food value of rumen contents available at slaughtering centres in this country, material obtained from the Edinburgh City Abattoir has been examined. The first samples were taken on April 29th, 1941, when the material obtained appeared to consist largely of chopped hay and straw, with some oats and probably some turnips. It was obviously of a fibrous nature and could hardly be expected to form a particularly nutritious food. The contents of 26 average-sized rumens weighed 1,703 lb., which corresponds to an average yield of 65·5 lb. from each animal killed. Moisture contributed 86·2 per cent. of this weight, so that the yield of dry matter per rumen was 9·04 lb. In order to preserve sufficient material for experimental tests a quantity of the rumen contents was dried in an I.W.E.L. plant. The possibility of removing some of the moisture centrifugally was also examined; although treatment in a steam turbine centrifuge for 15 minutes was nearly as effective as two and a half hours drying by steam heat, the centrifuged product proved to be very lumpy and was therefore very difficult to dry; moreover, the centrifugalisation removed more than water and so altered the composition of the material.

As the composition of rumen contents is likely to be very variable and the first samples were obtained at the end of the winter period, it was considered worth while to examine further samples taken during the summer period. On July 9th, 1941, the composition of two random samples of fresh rumen material was examined, one being obtained from a grass-fed animal, and one from an animal which had not received any appreciable amount of grass. In the case of the summer samples, only small quantities of material were dehydrated so that it was not possible to carry out experimental feeding trials.

In Table II are shown the analyses of the dried and centrifuged products obtained in April, together with the figures for the two samples examined in July.

TABLE II: COMPOSITION OF DRY MATTER OF RUMEN MATERIAL

	Winter Samples		Summer Samples	
	Dried	Centrifuged	Sample A (No grass)	Sample B (All grass)
Crude protein ..	15·23	16·09	9·23	15·42
True protein	14·44	14·64	8·08	14·31
Digestible* protein ..	8·85	10·37	3·65	7·35
Ether extract	3·71	3·08	2·30	3·24
Fibre	31·87	30·92	34·54	22·63
N-free extract ..	39·47	41·92	45·11	40·76
Ash	9·72	7·99	8·82	17·95
Silica	2·48	3·66	3·27	5·13
Silica-free ash.. ..	7·24	4·33	5·55	12·82
Lime (CaO) ..	0·622	0·741	0·488	1·955
Phosphoric acid (P_2O_5)	1·686	1·287	1·330	3·310
Per cent. digestibility* of crude protein ..	58·1	64·5	39·6	47·7

* Determined *in vitro* by Pepsin-HCl method.

These results show that there are very marked differences in protein and fibre percentages, as well as in the mineral constituents. Of the summer samples, the rumen contents of the grass-fed animal were decidedly the richer in protein and showed a higher *in vitro* digestibility of the protein, besides having a lower fibre content. Clearly Sample B was of much greater nutritive value than Sample A. Although the winter samples had a content of protein similar to that of Sample B, the fibre percentage was much greater in the winter samples and the food value was consequently lower.

Digestibility of the dried winter fodder was determined with two sheep, which did not relish the ration and only ate 1¼-1½ lb. of the dry matter per day. Good agreement was obtained between the results for the two animals, the mean percentage digestibilities being as follows:—

Organic matter	30·97
Crude protein	55·24
Ether extract	82·55
Fibre	21·65
N-free extract	22·38

The most outstanding feature of these results is the very low digestibility of the carbohydrates. Digestibility percentages for protein, ether extract and fibre were very similar to those obtained by Morgen (1917) for his sample No. 1, but the results for N-free extract were very different. Although Honcamp *et al.* (1919) and Morgen (1917) obtained high digestibilities for N-free extractives in their experiments (see Table I), it should be borne in mind that these workers used *molassed* rumen contents so that a marked difference between their digestibilities for fibre and N-free extract was only to be expected.

Theoretical considerations suggest that considerable changes are likely to occur in the carbohydrates of food material lying in the rumen. Some digestion of nitrogen-free extractives and fibre is to be expected, and in this respect, particularly with regard to fibre, an enhanced feeding value might be anticipated. However, even without any evidence for absorption of digested carbohydrate material directly from the rumen, a considerable lowering of the feeding value will inevitably result from two factors, *viz.*:—

(1) Continual removal from the rumen of soluble material and the finer particles of the insoluble food after comminution.

(2) Prolonged fermentation of the more digestible carbohydrates, leading to greater losses as methane.

Animals for slaughter are usually subjected to some degree of fasting, so that the last food remains in the rumen for a prolonged period. In addition to the extended fermentation loss which is thus possible, selective removal by mechanical means of the more digestible portions of the rumen contents also proceeds for a prolonged period, and thus may remove a considerable proportion of the more valuable carbohydrates. There can be little doubt that these factors have contributed to the very low digestibility coefficients obtained for the carbohydrates in the rumen contents examined.

The results obtained have shown that the dry matter of rumen contents from slaughtered cattle may be very variable in composition and feeding value. Although the digestibility of only a poor material was examined, it seems likely that the carbohydrate value will almost always be low so that usefulness as a food will depend largely on the protein content. Drying of the wet material is attended by several difficulties and with the I.W.E.L. plant employed the resultant product was dusty and of an unattractive odour. Dehydration by three or four immersions in alcohol, followed by exposure to the atmosphere, proved successful on a laboratory scale and gave a product which was free from disagreeable smell; the possibility therefore arises of treating rumen material in a solvent extraction plant, although vacuum drying might yield an odour-free product even without the use of solvents. It seems very doubtful, however, whether the production of dried rumen contents could be effected economically in view of its limited feeding value.

The authors are indebted to Mr. H. S. Ewart, Manager of the Edinburgh City Abattoir, who very kindly provided the facilities for this work and gave his full co-operation in dehydrating some of the rumen material, and to Mr. Brynmor Thomas, of King's College, Newcastle, who placed at the disposal of one of us (N. V.) facilities for carrying out the digestibility trial with sheep.

References

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Reminiscences of a Locum

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When a graduate gets his diploma he may think he is qualified to take over a practice and run it successfully. It is well that he should think twice before embarking on the venture: there are many things he has not yet learnt and one of the best ways of learning them is to take up *locum tenens* work. If he can get a steady sequence for a few months it is a profitable way monetarily as well as educationally to see the veterinary world, its failures and successes, its puzzles and plain sailing, and to make contact with all classes of humanity and their peculiarities. You go to meet professional men—and probably their wives—whom you have never met before; you enter a house you have never been in previously, and you work in strange surgeries and surroundings.

One of the things that caused me much thought was how to run practices in the absence of the principal when in some cases there were about twelve drugs and half a dozen bottles of mixture and a few packets of powders made up; in other cases one would be confronted by a matter of 50 drugs and almost innumerable stores of made-up medicine. Fortunately, I had a fair knowledge of medicine and therapeutics and as a rule got on very well—at all events, to the best of my recollection, I never killed any animal by over-dosing or delayed recovery by under-dosing.

An old tutor of mine used often to say to me, "If you want to run a successful practice encourage the sale of medicines," and certainly when a principal returns from his holidays he likes to see not only a number of cases on his books that have been seen and treated but the record of a good range of remedies that have been sold. He also appreciates a *locum* who has not been stumped in the treatment of any cases and is glad to find, on his return, that he has not been left to "carry the baby" and cover up mistakes.

Little points showing prescience gain the friendship and confidence of clients. In one case a valuable hackney stallion that had won the Gold Cup at Islington had a tumour as big as a Valencia orange on its buttock. It could and would metaphorically "kick the eye out of a gnat" if it was interfered with. The owner strongly objected to having the horse cast and the question arose, what was to be done? Without very deep thought I arrived at a simple solution. Fortunately the tumour had a narrowish neck and round this a strong piece of whipcord, with very long ends, was placed. The stud groom on one side and myself on the other pulled it as tight as we could. The cord was tightened every day and the tumour was cut off beautifully. Only a little thing, but I received great praise from the owner and a glass of excellent port wine, and he told the principal when he returned from his holiday what a good *locum* he had employed.

It was in this practice that I bought the first horse I had ever purchased at a sale, acquiring it for £30. The principal's comment on his return was, "If you got it for that money there must be something wrong with it." Despite my rejoinder, "Well, I gave it a careful examination and I passed it sound," I felt a bit downhearted at the principal's dictum. On my return home, therefore, I wrote to the firm I had acted for and asked how they liked the vanner I had bought for them. The reply was, "We like him very well, but he is a bit of a slug on the road, which, however, we think is an advantage"—a verdict of which I duly informed my employer.

When doing a *locum* one is often asked—"Will the patient get better?" My answer to that one is, "Sir (or Madam) I am only a veterinary surgeon and not a prophet and I will do my best." Having given this answer to two religious old ladies enquiring about their dog's chances of recovery, I added, "but anyway, ladies, the issues of life and death are in higher hands than ours," and as they went away I heard one lady say to the other, "what a nice man he is."

One incident worth recording occurred while I was acting for a veterinary surgeon in a suburb of London when the principal and his assistant had both gone on holiday and where I saw 50 cases from Saturday morning to Tuesday morning. I was called to see a horse that had been knocked down in the street, and when I got there I found the normal London crowd and a sergeant of police, a police constable and an R.S.P.C.A. inspector. Before I could examine the horse I was asked by the officer whether the horse's leg was broken. I said, "Oh give me time, I'm not a conjuror or prestidigitator." After a close examination I expressed the opinion that the horse's leg was not broken. "Oh, then," said the inspector, "it won't be cruelty to walk it home," to which I replied, "that doesn't follow; it must be taken home in a float." Fortunately, I had read of a case just previously where a man had ordered a horse that was suffering from azoturia to be slaughtered, and damages were given against him because he didn't have it removed in a float. The moral is, always remember there is a float and if diagnosis is at all doubtful, don't advise slaughter.

Another vivid "case" recollection is of having three mares with their wombs out in a week, only one of which recovered. Colt castrations were all done with the écraseur (sterilisable), preferably with the subjects cast but some standing. Rams were castrated and docked with the cautery in the usual way: older rams were castrated with steel clams.

A number of the practices of which I took charge, some twelve in all, were a combination of town and country work—in my opinion always the best type of practice and those most likely to last and be remunerative. I spent many happy and useful days as a *locum* and used to return home with a five or ten pound note in my pocket and have a few days' rest and cogitation—then off again. I visited many parts of England and gained much experience. Although some people call a *locum tenens* "a local demon" he serves a useful purpose and if he is personable, conscientious, thoughtful and versatile, he may be described as a good and faithful servant.

MILK KEEPING QUALITY TESTS

Under the coming quality scheme for milk, there is to be periodical testing of milk for keeping quality when it arrives at the depot from the farm. In this connection *The Farmers' Weekly* comments: "One would like to think that similar tests are as frequently applied to milk *after* it leaves the depots for distribution. One of the big arguments in favour of pasteurisation is that it improves the keeping quality of milk. In recent hot weather the keeping quality of a good deal of the pasteurised milk was very low indeed. That probably points to inefficient handling of the pasteurisation plants, which may be due to shortage of labour or the enforced employment of inadequately skilled men. Whatever it is, it should be dealt with. Don't always blame the milk producer for sour milk."

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Weekly Wisdom

"... *There are occupations so mechanical and monotonous as to be little better than treadmills for the grinding out of the necessary portion of daily bread, but the veterinary profession is not one of these. The practice of medicine, whether human or veterinary, presents an endless variety of interesting problems, the solution of which affords an exercise for the most perfectly trained powers of observation and the highest reasoning faculties.*"—J. McFadyean, 1900.

THE VETERINARY RECORD

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VETERINARY PLANNING

THE Draft Interim Report of the Medical Planning Commission (summarised in this issue) is a document of great interest to those concerned in the future development of the veterinary profession. In an editorial article *The Lancet** remarks that the plan is strangely familiar, being similar in general outline to the Dawson report prepared in 1920 under the general direction of Dr. Addison, the first Minister of Health. The central aim then, as now, was to unify the profession and set a standard which freedom of thought and action alone can give. It is not known why the plan of 1920 was never put into force unless it was because of the well-known dangers of introducing measures before the profession or public are ready for them. The outlook has changed since 1920, the present plan is no longer a prophetic vision, but has been formulated by an influential body representing all sections of the medical profession.

Some may feel that this, or indeed, any other plan may jeopardise the complete scientific and academic freedom in thought and expression which they hold to be essential to progress. It is, however, becoming increasingly realised that some organisation of effort is essential : perhaps the greatest problem facing society to-day is to evolve a type of organisation which will be effective, and yet allow ample scope for the initiative and ideals of the individual. Some tentative developments in this direction have already begun. Self interest probably always will be one of the prime motivating forces and there need be nothing wrong in that, but with the gradual development of a social conscience and the ideal of service, it is to be hoped that self interest will be enlarged to include the furtherence of professional or even much wider ideals.

The report of the Commission envisages the division of the country into natural hospital regions, each, if possible, containing a teaching hospital and smaller local hospitals, with general practitioners working from health centres. These health centres will not be devoted entirely to the cure or even the prevention of disease but to the promotion of positive health. The dental profession has also put forward proposals for reorganisation.†

A perusal of these reports naturally causes the veterinary reader to speculate on the future organisation of the veterinary profession and to hope that when a long-term policy is published for discussion it will be equally frank in admitting defects and display the same spirit of adventure and care in drafting proposals.

Those who have studied the trend of agricultural thought, and recent agricultural developments will realise that if British agriculture is to survive it will have to improve its efficiency in relationship to world agriculture, and to achieve this its whole structure may have to change. It follows that a higher standard will be demanded of the veterinary profession. In a recent editorial we emphasised the fundamental necessity of improving education to meet this demand and the need for developing a *positive* health policy. But how is the practitioner going to be helped in his daily work, and can we develop regional advisory and research centres or perhaps even clinics for specialised work ?

There are vast differences between veterinary and medical practice but in each the lone practitioner has to overcome many disadvantages and even those in partnership would often welcome specialised help. In the past, when the London College was mainly interested in the study of the diseases of the horse, leading practitioners in the local veterinary societies played a great part in educating the profession. Divisions of the N.V.M.A. still carry on this educational tradition and it is pleasant to speculate on the possibility of having a regional laboratory and advisory centre at which members of a division could meet and obtain advice and help from each other and the staff of the centre. Good work is already being done by the veterinary investigation officers and with suitable modifications in organisation a much enlarged service might be formed. The centres from which veterinary investigation officers work and the veterinary colleges, if adequately equipped, would form the natural centres in their own districts ; but the possibility of assistance from the Animal Health Division must not be overlooked as the work of this service may be largely decentralised.

We cannot usefully speculate further at the present time on the type of regional centres which could be developed. The Medical Planning Commission emphasised the importance of having senior clinical appointments in hospitals and the dangers of creating senior administrative posts carrying higher salaries and over-riding authority : in the same way regional veterinary centres must be staffed, not by administrators, but by men and women with a scientific training and a practical outlook whose chief interest is to study and improve the methods of livestock production in their district both by carrying out original research and by helping and advising local practitioners.

But speculation is not necessary to appreciate the fact that the first essential step in any veterinary plan must be a marked improvement in our facilities for general and specialist veterinary education.

* June 27th.

† *Brit. Med. J.*, June 27th.

CLINICAL COMMUNICATIONS

A Fistula Treated with Brucella abortus Vaccine

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Having had the pleasure of listening to Major H. Sumner's paper to the Lancashire V.A. in Manchester on February 25th, 1942, and reported in *The Veterinary Record* for June 27th, 1942, I was in a position to adopt his treatment when a case arose in my practice.

A valuable van mare, " Lady," had a collar gall at the base of the neck which had been allowed to develop into a necrotic sitfast which was painful. The mare was kept up and I was called in on April 24th.

The sitfast was dissected out under a local anaesthetic (Novutox). There was swelling and tenderness for a length of ten inches down the side of the neck. This was painted with tincture of iodine for seven days. On May 1st it was opened at the top and bottom, a seton passed through, and half a pint of blood-stained pus evacuated.

Some *Brucella abortus* vaccine was obtained from Dr. Davies, of the Liverpool University, and the mare's skin being very thick and tough it was injected directly into the fistula on May 4th, the dose being 3 c.c. On May 8th 5 c.c. were injected. The swelling had declined and discharge lessened, as also had tumefaction which had occurred all over the mare's body. On May 12th 7 c.c. were injected and the wound was doing well with very little discharge, while the general condition of the mare was almost normal. On this date the seton was removed and the vaccine injected directly into the fistulous tract. The mare made an uninterrupted recovery and was back at work on May 20th.

This was a bad case and the result very gratifying to myself and the owners of the mare.

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Needle Extracted from Dog's Thorax

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Subject.—Cross-bred Corgi, 12 months old.

Symptoms.—The owner brought the dog into my surgery and complained of a lump on the side of its ribs. On examination the lesion felt like a deep-seated cyst. As it seemed to be increasing in size I advised an operation for removal, and proceeded accordingly. When I removed it, however, I noticed that there seemed to be a fibrous tract and tiny fistula proceeding into the thorax. I was suspicious then, but on probing deeply could feel nothing. The wound was sutured and the owner advised to bring the dog in again. The wound healed satisfactorily but a month later a firm painful swelling developed on the opposite side of the thorax. No other

(*Concluded at foot of col.* 1, *page* 362)

ABSTRACTS

[POST-MORTEM STATISTICS OF CASES OF EQUINE COLIC.

Dobberstein, J., and Dinter, W. (1941.) *Arch. wiss. prakt. Tierheilk.* **76.** 256-286.]

During the years 1922-39 a total of 1,121 horses was examined *post mortem* at the Berlin Veterinary College, and of these 555 (49·42 per cent.) died from "colic." This paper describes the various types of colic encountered and discusses the findings in relation to work previously published. Most of the animals were working horses brought to the College from Greater Berlin.

In 112 animals the cause of the colic was *altered position of portions of intestine*—volvulus of small intestine 37 (jejunum in 32 cases), volvulus of large intestine 37 (large colon 36, small colon 1), intussusception 9 (small intestine 6, large intestine 3), incarceration 13 (scrotal hernia 4, foramen of Winslow 3, omental hernia 3, abdominal ligaments 3), strangulation 13 (pedunculated lipoma 10, fibrous adhesions 3), flexion of a portion of intestine 3 (caecum 2, colon 1).

Embolism and thrombosis was the cause of fatal colic in 20 animals; the incidence is thus extremely low when one remembers that up to 90 to 95 per cent. of all horses show at autopsy aneurysm and thrombosis affecting the anterior mesenteric or other arteries. Although embolism is common, fatal effects are rare, due to the rich anastomosis of the vessels of the large intestine in the horse. The main anterior mesenteric was involved in 3 cases, the ileocolic in 5, the dorsal and ventral colic in 9 and the caecal arteries in 2 cases: in the remaining case there was no record of the site of the embolism. The constant feature was haemorrhagic or anaemic infarction of portions of intestine. In some cases there were pale infarcts in the kidneys from emboli from the thrombus in the main anterior mesenteric artery. In contrast to the cases of colic due to intestinal displacement, embolism was common in young animals, there being 6 cases in horses aged one to five years. Of the 20 cases 12 occurred between June and September, but the present state of our knowledge does not allow of any conclusion as to whether this is related to the life cycle of the parasite.

Impaction accounted for 314 cases of colic, *i.e.*, 56·58 per cent. of the total. Primary gastric dilatation was found in 40 horses, in 27 of which it resulted in rupture. The incidence of rupture is lower than recorded by other authors probably due to early emptying by the stomach tube. The site of rupture was always either along the greater curvature or parallel to it and the tear was much smaller in the mucosa than in the overlying muscularis and serosa. Death was due to autointoxication in all save three cases, these being due to asphyxia (rupture of diaphragm), haemorrhage, and acute peritonitis respectively. Rupture of the stomach was more common in old horses.

Impaction of the small intestine was seen in 73 animals—ileum 62, duodenum 6, jejunum 5. Obstruction due to contraction of scar tissue was found in only 2 cases and hypertrophy of the musculature of the small intestine (ileum) in 12. In 48 of the animals the impaction produced secondary impaction of the stomach and caused death from gastric rupture in 22; it appeared that the likelihood of gastric dilatation was greater when the seat of intestinal impaction was near the stomach. The condition was rare in horses under five years old.

The commonest form of impaction and the most frequent single type of colic affected the large intestine—188 cases, *i.e.*, 33·88 per cent. of all fatal colic cases. These were distributed as follows: caecum 98, large colon 86, small colon 4. Recent work on caecal impaction suggests that the cause is continued spasm of the muscular coat of the caecum brought about through its nerve supply; it is accompanied eventually by hypertrophy of the muscularis. An extensive series of measurements on a large number of cases by Gratzl suggests that a diagnosis can be made *post mortem* when the caecum, emptied of its contents, weighs more than 4·5 kg., when the dry material within it weighs more than 20 kg., and the muscular coat at the apex of the caecum measures 1·8 mm. or more in thickness. The present authors usually found the apex of the caecum filled with a very dry material whereas the rest of the caecum showed either normal contents or material only slightly dryer than usual; in a few cases the whole caecum was filled with dry material, weighing 50 kg. or more. In 73 of the cases fatal results were due to rupture which in 71 animals occurred at the apex. The site of rupture was often near the connective tissue between caecum, right kidney and abdominal wall and the caecal contents set free when rupture occurred collected locally at this site and gave rise to an acute peritonitis. It was unusual for the caecal contents to be distributed diffusely through the peritoneal cavity. Accompanying the caecal impaction there was pulmonary oedema in 39 animals, brought about by heart failure. More than five-sixths of the cases of caecal impaction occurred in animals over ten years old. Almost half the total cases occurred during the months of June, July and August; this bears out the views of other workers who have stated that cases of colic are more common in hot weather and when there are marked diurnal temperature variations.

There were 86 cases of impaction of the large colon—ventral colon 18, pelvic flexure 13, stomach-like dilated portion 48, no details given 7. A common secondary effect was tympany of the small intestine and stomach, with death from rupture of the stomach in 11 animals. Other complications included enteritis, pulmonary oedema and rupture of the diaphragm. As with caecal impaction the condition was commoner in old animals and during the summer months.

Only four cases of impaction of the small colon and rectum were encountered.

Tympany as a primary cause of fatal colic was found in only 14 cases. Death is usually due either to asphyxia from rupture of the diaphragm or to acute heart failure and pulmonary oedema.

Other forms of colic included enteritis (96 cases), sand in the large colon (6 cases), enteroliths in the large intestine (2 cases), intestinal obstruction by masses of Ascaris (3 cases), primary adenocarcinoma of the large colon (1 case) and diverticulum of the ileum (1 case). About half the cases of enteritis were secondary, either to some other disease—such as influenza or myoglobinuria—or to previous attacks of various types of colic (impaction, embolism). The remaining cases of enteritis were primary and were almost always acute in character; accompanying changes in other organs included cloudy swelling of the myocardium, petechial haemorrhages, splenic enlargement, pulmonary oedema, peritonitis and fatty changes in the liver. In contrast to other types of colic it was noted that enteritis was more common in young horses; there was a definite but only slightly higher incidence during the summer months.

The authors have collected together published data relating to about 3,500 cases of colic in horses, including their own cases, and have classified them broadly into the following groups. The very unusual types have been omitted from the table.

	Per cent.
Volvulus of the colon	14·5
Gastric dilatation	13·5
Gastritis and enteritis	12·5
Volvulus of small intestine	11·8
Impaction of colon	10·3
Impaction of caecum	6·5
Other causes, *e.g.*, parasites, calculi, sand, neoplasms	6·0
Impaction of small intestine	5·6
Incarceration (internal and external hernia) ...	5·4
Tympany	3·7
Thrombosis and embolism	3·3
Strangulation (lipoma, fibrous adhesions)	2·8
Intussusception	2·1
Flexion of caecum or colon on itself	0·4

E. G. W.

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[AETIOLOGY AND TREATMENT OF PAPILLOMATOSIS IN CATTLE. Rosenberger, G. (1941.) *Deuts. tierärztl. Wschr.* **49.** 177-181.]

During 1935-40 a total of 5,225 cattle was admitted to the clinic of the Hanover Veterinary School; 131 (2·5 per cent.) were affected with papillomatosis. In 1934 Liess, working at the Hanover clinic, published a detailed account of the condition and recommended removal of the papillomata by radical operation. During the past

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symptoms were noticed. The dog ate well but always had a slightly depressed appearance about it.

Diagnosis.—Guarded. It was suggested that an X-ray for foreign body be taken.

Treatment.—I advised the application of hot fomentations to the hard swelling, together with the internal administration of sulphanilamide powders, whilst the owner considered having the dog X-rayed. The owner decided upon this, but meanwhile the abscess burst. I gave a local anaesthetic and probed deeply again for a foreign body but without success.

The X-ray photograph revealed a darning needle, wedged in the thorax, lying with its point at one side (where the previous "cyst" had been removed) and the eye at the ribs where the abscess had burst.

The dog was anaesthetised by nembutal. With the X-ray photograph to guide me I made an incision over the site of the eye of the needle, and after a little deep probing found it and extracted with forceps a corroded and darkly stained needle. The dog made an uneventful recovery and now looks much happier.

History.—I afterwards learned that the dog had had a chronic dry cough during last winter. The owner now recalled the pup, as he then was, having upset the work-basket and played with its contents.

six years Rosenberger has continued this work and has had considerable success by operative removal. He has also transmitted the condition to a healthy bovine by injection of filtered extract of naturally occurring papillomata. Two papillomata developed in the animal five weeks after inoculation of the filtered material and after a further four weeks they reached the size of a "bean." Histological examination showed a structure similar to the spontaneous tumours. Regression occurred subsequently. A control animal injected with unfiltered material developed papillomata three weeks after inoculation, the growths reaching their maximal size (hen's egg) after three to four months.

It is well known that papillomatosis not infrequently regresses spontaneously but animals in which the condition interferes with their usefulness (udder, eyes, harness sites) or which have become poor in condition owing to widespread distribution of the lesions are suitable subjects for radical operation. Treatment with a great variety of chemical agents has been recommended but none appears of any real value: so-called cures have probably been due to spontaneous regression.

A knowledge of the structure of the lesions is essential for their successful removal. Small papillomata are flattened and extend deep into the corium but never invade the subcutaneous tissues. Such tumours are removed with sharp curved scissors and their removal leaves a crateriform wound, the floor consisting of corium and the edges of epidermis. Larger tumours often become pedunculated and can be removed by simple squeezing with the hand or at most by using the Burdizzo castrator. Since the subcutaneous tissue is never involved the resulting wounds, extending only into the corium, heal very rapidly.

When the main mass of growths is situated on the posterior abdominal wall and udder it is best to use epidural anaesthesia: papillomata confined mainly to the head and neck require narcosis by chloral hydrate (4 g. chloral hydrate per cwt. body weight given slowly in 5 to 10 per cent. solution intravenously). The growths are thoroughly cleansed with soap-suds before removal. The extirpated material should be collected in a bucket and carefully disposed of in order to prevent spread of the condition by contact. Haemorrhage is usually easily controlled; artery forceps are usually sufficient and ligatures are only very occasionally necessary. Finally, the operation sites are again washed with soap-suds. In this way infective material set free during the operation is probably rendered harmless and the proportion of recurrences reduced.

When the condition is very widespread it is advisable to carry out the operation in two stages at an eight-day interval. No subsequent attention is needed except for provision of a clean stall and plenty of clean bedding and good food. The premises where the operation was carried out should be thoroughly cleaned, the straw disposed of and all materials washed with soap and water.

Of the 131 animals admitted to the Hanover clinic with papillomatosis, all were operated on and in only two of them did the condition recur. These two animals were in an early stage and not all the tumours were removed at the first operation.

Photographs illustrate very strikingly the successful results of operative treatment in three animals with widespread papillomatosis.

E. G. W.

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local authorities. The rural district presents special problems and periodical visits of specialists to an area might be arranged. It is of the utmost importance that there should be in municipal hospitals senior clinical posts carrying the same status and salary as senior administrative posts, otherwise able men will be tempted away from clinical work and patients deprived of their experience. It is generally believed that the right to some private practice is to the advantage of the community, the individual officer, the hospital unit, and the profession. In all hospitals there should be a committee, representative of the medical staff, with direct access to the hospital committee and not entirely subservient to the medical superintendent. As far as possible there should be a teaching hospital in each region and *it is very desirable that university standards should permeate all medical teaching and research and that the formation of university units should be arranged.*

It is suggested that in qualifying the student should receive provisional registration which would permit him to practice under supervision for one year, when, if satisfactory, he would become fully qualified. It is the general opinion that consultants should be attached to hospitals and receive a salary but that the appointment need not necessarily be whole time.

The report ends with a number of questions for decision, focusing attention on the major points of principle. In view of the fact that the full adoption of the plan may be delayed for various reasons an important question is whether any interim changes should be undertaken,

REPORT

B.M.A. Medical Planning Commission

Summary of Draft Interim Report

Introduction.—The commission, consisting of 73 representative members, was appointed in August, 1940, "to study war-time developments and their effects on the country's medical services both present and future." Six main committees were appointed, five of them dealing with more or less specialised branches of medical activity. The reports of the special committees have now been integrated by the co-ordinating committee and the composite document is being submitted by the Commission as a draft interim report for discussion by the profession. The Commission will then revise and complete the interim report, submit it to the Government and subsequently work out the final details.

Objects of Reform.—The Commission has adopted the following broad aims:—

(*a*) To provide a system of medical service directed towards the achievement of positive health, the prevention of disease and the relief of sickness.

(*b*) To render available to every individual all necessary medical services, both general and specialist, and both domiciliary and institutional.

Some Criticisms of Present Medical Services.—Great evolutionary changes have taken place during the last 100 years in the aims and organisations of both the local and national medical services. The present organisation has become chaotic and quite inadequate to meet modern needs. There has been no comprehensive national health policy to guide legislative developments and planning authorities have often neglected medical opinion. The general public has become critical and the general practitioner is not satisfied with the conditions under which he has to work; it is obviously no longer possible for an individual to provide adequate facilities for medical practice, and co-operation with a hospital or other centre is often made difficult. The existence of two types of hospital, private and municipal, adds to these difficulties.

Discussion.—Doctors must be competent and have time to devote to those medical services which they undertake to give, which more and more will be concerned with the promotion of health and the prevention of disease. This will involve *radical changes in the training of the medical student.* It is becoming generally recognised that co-operation between practitioners in a locality is essential to efficient practice and that the practitioners should be closely linked, perhaps through the health centre, to a unified hospital service, *i.e.*, one combining the best features of the voluntary and municipal hospitals. The Nuffield trust and the Emergency Medical Service have done much to forward the regionalisation of hospitals and there is no doubt that this tendency will continue. Some maintain that these developments can take place within the present system and quote the well-known and, it must be admitted, well-founded arguments against a whole-time medical service which some assert would turn medical men into "administrators" and endanger the whole freedom of action of the medical profession. Others feel that an efficient service cannot be obtained from a system where doctors compete for patients, and believe that initiative and clinical ability could be maintained in a State service.

The majority view is that the aims of those desiring a whole-time service can be achieved by the adaptation, augmentation and reorientation of existing services so as to integrate them into a co-ordinated whole in which co-operative general practice based on a health centre would play a large part.

Proposals.—There should be a central authority, either a Government Department or corporate body, responsible for all civilian medical services with a practitioner at its head and largely medical in its composition.

This central authority would act through newly formed Regional Authorities as existing local authorities' areas are usually quite unsuitable. A health centre would relieve the doctor of much of the responsibility for secretarial and other work and his patients would gain immeasurably from his close and constant contact with his colleagues. The centre must on the one hand preserve the professional independence of the co-operating general practitioners, and on the other hand be capable of becoming an organised unit in an integrated medical service. It would generally be preferable if these health centres were officially constituted rather than be allowed to develop voluntarily, but in any case they would have to be formed gradually region by region. Periods for holidays and *compulsory post-graduate study* would also be arranged. The medical staff for the centre would be responsible for ante- and post-natal infant welfare and school medical work which is at present rendered by the

(*Concluded at foot of previous column*)

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Sept. 20th.—Entries for Miss Aleen Cust Veterinary Research Scholarship (R.C.V.S.).

Sept. 24th and 25th.—N.V.M.A. Annual General Meeting and Conference, Holborn Restaurant, High Holborn, W.C.1. Annual Luncheon, Mansion House, City of London (Sept. 25th).

Sept. 25th.—Meeting of the V.V.B.F. Ladies' Guild, Holborn Restaurant, Holborn, 10.30 a.m.

Oct. 1st.—Annual Meeting of the Central Veterinary Society, Conway Hall, Red Lion Square, W.C.1, 2.45 p.m.

Oct. 13th.—R.C.V.S. Council and Committee Meetings, Royal Station Hotel, York.

Oct. 14th.—R.C.V.S. Council and Committee Meetings, Royal Station Hotel, York.

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MANSION HOUSE LUNCHEON

Minister of Agriculture to Speak

Members of the Association will be gratified to learn that Mr. R. S. Hudson, the Minister of Agriculture, has cordially accepted the invitation extended to him to propose the toast of "The Veterinary Profession" at the Annual Luncheon to be held, with the Lord Mayor and other distinguished guests present, at the Mansion House, on Friday, September 25th.

Mr. Hudson's readiness to attend the forthcoming conference, in the midst of the additional cares which beset high Officers of State under war-time conditions, will be deeply appreciated by all our members, who will recall that the Minister of the time, Mr. W. S. Morrison, proposed the toast of "The Association" at the Bournemouth Congress Banquet in 1937—the only other occasion upon which a "National" annual gathering has been honoured by the presence of a Minister of the Crown.

More particularly in view of the recent launching, under the aegis of his Ministry, of the Association's Scheme for the Control of Certain Diseases of Dairy Cattle, will Mr. Hudson's presence render the event one of outstanding interest and significance in the annals of the N.V.M.A. We are confident that a very large company of members of the profession will be present to welcome him in the historic Civic Centre where we are privileged to meet. Particularly they will recognise his desire to join with us as further evidence of the cordiality of the relationship existing between himself and his Department, and the profession.

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The President's Reception

As already announced, the President and Mrs. Wooldridge will hold a Reception at the Waldorf Hotel, Aldwych, W.C.2. This will take place on Wednesday, September 23rd, at 8.30 p.m., and dress will be informal.

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Tickets for the reception and the luncheon may be obtained from the General Secretary, N.V.M.A., at 36, Gordon Square, W.C.1. Applications for tickets—which, in the case of the luncheon, should be accompanied by a remittance of 15s. per person—should be made immediately as, under existing circumstances, delay would seriously interfere with the making of arrangements for these functions.

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Farm Livestock Emergency Service

The Minister of Home Security has accepted the Farm Livestock Emergency Service as an "approved organisation" under the Defence Regulations, and at a meeting of the Executive Committee held at 36, Gordon Square, W.C.1, on August 24th, the hope was expressed that the Veterinary Officers, Parish Animal Stewards and other personnel assisting the Rural Areas Scheme will accept service with the new body, which will undertake the requisite reorganisation as soon as possible. The Urban Areas Scheme of N.A.R.P.A.C. remains in being as formerly.

It was reported that premises have been taken at 29, Tavistock Square, W.C.1, as the headquarters of the Farm Livestock Emergency Service. It is anticipated that very shortly transference to these premises will be made from 36, Gordon Square (adjoining), where the business of the Service has been carried on hitherto.

At the same meeting appointment as Secretary was made of Major W. H. McGowan, whose military life has been passed exclusively in the Mounted Branches of the Royal Artillery, where his duties involved the care of large numbers of animals. In the course of his career in many parts of the Empire, moreover, Major McGowan has acquired considerable first-hand experience of farming.

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PERSONAL

Forthcoming Marriage.—Captain J. S. Stones—Miss S. L. Rabagliati.—The engagement is announced between Captain James Snowdon Stones, The Durham Light Infantry, son of Mr. and Mrs. J. Stones, Parkside, Sedgefield, Co. Durham, and Sylvia Lucy, only daughter of Major and Mrs. D. S. Rabagliati, Fidra, St. Margaret's Road, Edinburgh.

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Marriages.—Davies—Matthews.—At St. Alkmund's Church, Whitchurch, on August 12th, 1942, Harold Stanley Davies, M.R.C.V.S., son of Mr. and Mrs. R. E. H. Davies, Prees, Shropshire, to Joan (Peggy), younger daughter of Mr. and Mrs. A. A. Matthews, Whitchurch, Shropshire. Mr. G. D. Lewis, M.R.C.V.S., was best man.

Pritchard—Jones.—On Saturday, August 22nd, at St. David's Church, Denbigh, the marriage took place of Robert William Pritchard, M.R.C.V.S., third son of Mr. and Mrs. J. Pritchard, of Denbigh, to Margot Lewis Jones, S.R.N., Royal Infirmary, Liverpool, only daughter of Mr. and Mrs. E. Owen Jones, of Denbigh.

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R.C.V.S. OBITUARY

Ferrier, Hugh, Claver House, Dundee. Graduated Glasgow, December 23rd, 1896. Died August 24th, 1942; aged 79 years.

Hogg, Thomas, Heath House, Newmarket, Capt. late R.A.V.C. Graduated Edinburgh, May 28th, 1900. Died August 31st, 1942.

James, Watkin, Llwynfedw, Cribyn, Lampeter, Cards. Graduated London, December 12th, 1894. Died August 17th, 1942.

Capt. Thos. Hogg, M.R.C.V.S.

A Renowned Trainer

It is with deep regret that, following so shortly upon our references to Capt. Thomas Hogg as private trainer to the late Lord Glanely at Newmarket, we have to record his death, which took place in a nursing home at Cambridge, on Monday last, after a short illness. Captain Hogg, who was known and held in high esteem by all followers of racing, was not only a great trainer of horses, but also an authority on their breeding.

After qualifying in the early days of the Boer War, he joined the Royal Army Veterinary Corps and served in South Africa as veterinary surgeon attached to a well-known cavalry regiment. He settled in that country for some years, being appointed veterinary surgeon to the Turf Club of Johannesburg. While there he trained racehorses with success, and on his return to this country he acted for some time as veterinary surgeon to Richard Wootton and other trainers at Epsom. He then resumed training on his own account, having large stables at Ogbourne, Wiltshire, and training many winners there before returning to the R.A.V.C., with whom he served throughout the Great War of 1914-1918.

Captain Hogg's subsequent career as a trainer was even more successful. After winning the Gold Cup with Happy Man for Mr. Fred Hardy, of Manchester, he took over Lord Glanely's stable from another famous veterinary surgeon trainer, the late F. Bonner Barling, to whose father, F. W. Barling, of Ross-on-Wye, he had been an assistant in his very early days. Of his period of service with Lord Glanely the Racing Correspondent of *The Times* writes, in the course of a notable tribute, "Captain Hogg won for Lord Glanely practically all the great races run in this country. Among the most famous horses that he trained were Singapore and Chumleigh, who won the St. Leger, Rose of England, who won the Oaks, and Colombo, who won the Two Thousand Guineas. In addition to these classic races Captain Hogg saddled the winners of many well-known handicaps. Captain Hogg was probably at his best as a trainer with staying horses, but he could also train horses to win important races over shorter distances. For instance, he won the Stewards' Cup at Goodwood with Navigator and the Royal Hunt Cup with Grand Salute."

The tribute concludes: "Captain Hogg in his early life was a fine boxer and later a very successful player of bowls. He was deservedly popular with all classes of the racing world, and will be much missed by all who knew him."

Mr. Hugh Ferrier, M.R.C.V.S.

Mr. Hugh Ferrier, whose death we record with much regret, was formerly veterinary surgeon to Dundee Corporation. He was a native of Ayrshire, and was almost 80 years of age. After early experience in agriculture, Mr. Ferrier qualified as a member of the Royal College in 1896. He set up practice in Alexandria, and held an appointment as inspector in Dumbartonshire before going to Dundee in 1907. He retired in 1936. As a breeder, exhibitor and judge of Scots terriers, Mr. Ferrier was well known throughout Scotland. His "Taybank" champions won many British and international awards. He was a Past President of the Scottish Terrier Club, and a committee member of the Scottish Kennel Club.

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SCHEME FOR THE CONTROL OF DISEASES OF DAIRY CATTLE

STATEMENT SHOWING THE NUMBER OF UNDERTAKINGS NOTIFIED TO THE MINISTRY OF AGRICULTURE DURING THE WEEK ENDED AUGUST 29TH, 1942.

County	Undertakings Notified		Total Undertakings		
	During Week	Previously	No.	No. of Cattle	
				Cows	Heifers
ENGLAND					
Bedford	2	19	21	564	402
Berks	1	29	30	962	617
Bucks	1	23	24	671	503
Cambridge	—	7	7	178	88
Chester	13	167	180	6,576	2,207
Cornwall	—	—	—	—	—
Cumberland ..	—	18	18	573	526
Derby	5	56	61	1,887	1,061
Devon	2	66	68	1,145	783
Dorset	5	13	18	581	286
Durham	2	110	112	2,653	706
Essex	3	91	94	4,126	2,402
Gloucester	4	35	39	1,432	815
Hampshire	7	130	137	4,561	2,909
Hereford	—	11	11	224	99
Hertford	3	30	33	1,043	702
Hunts	—	3	3	49	45
Isle of Ely	—	—	—	—	—
Isle of Wight ..	—	4	4	55	15
Kent	1	54	55	1,175	708
Lancs	6	80	86	2,621	796
Leics	8	20	28	810	518
Lincs (Holland) ..	—	4	4	45	11
" (Kesteven) ..	—	6	6	72	57
" (Lindsey) ..	2	19	21	402	163
Middlesex	—	1	1	30	—
Norfolk	9	88	97	2,936	1,927
Northants	2	27	29	869	705
Northumberland ..	1	35	36	1,115	596
Notts	3	29	32	959	452
Oxford	—	15	15	419	502
Rutland	—	6	6	110	68
Salop	12	110	122	4,129	1,942
Soke of Peterborough	—	—	—	—	—
Somerset	3	53	56	1,536	627
Staffs	2	84	86	2,592	1,244
Suffolk, E.	6	29	35	918	650
" W. ..	3	18	21	366	246
Surrey	4	49	53	1,510	657
Sussex, E.	5	70	75	1,906	964
" W.	4	48	52	1,555	1,043
Warwick	11	53	64	1,673	1,063
Westmorland ..	—	6	6	129	178
Wilts	—	33	33	1,455	654
Worcester	7	78	85	1,962	881
Yorkshire, E.R. ..	4	15	19	349	174
" N.R. ..	1	54	55	1,178	653
" W.R. ..	9	97	106	2,936	1,003
WALES					
Anglesey	—	8	8	161	50
Brecon	—	2	2	25	9
Caernarvon ..	4	56	60	1,265	550
Cardigan	—	11	11	166	117
Carmarthen ..	6	118	124	2,320	1,203
Denbigh	2	27	29	637	291
Flint	6	48	54	1,213	561
Glamorgan	—	37	37	543	224
Merioneth	2	3	5	64	58
Monmouth	1	14	15	432	230
Montgomery ..	2	2	4	132	118
Pembroke	6	45	51	1,059	656
Radnor	—	—	—	—	—
TOTALS ..	180	2,364	2,544	71,036	36,715

Note.—Of the total of 2,544 undertakings notified to date 699 are for 1 year 146 are for 2 years, and 1,699 are for 3 years.

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ROYAL ARMY VETERINARY CORPS

The following notifications are made in recent issues of *The London Gazette*: 2nd Lt. S. L. Trevor (162557), from Ind. Army (Emergency comms.), to be Lt. August 5th, 1942, with precedence next above Lt. A. W. Peyton (201786). The following to be Lts.: Donald Bannatyne Shaw (239408), July 22nd, 1942; Charles Newby Chappel (239933), July 29th, 1942.

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FOOT-AND-MOUTH DISEASE

Outbreaks cover a wide area from as far south as Wiltshire and Somerset to as far north as Fifeshire. The largest outbreak, which is now believed to be well under control, is in the Wiltshire and Somerset area, where 110 farmers have lost all their livestock. In the North few dairy herds have been affected.

Many outbreaks have been traced to unboiled or improperly treated swill made from household refuse. The Ministry is warning farmers that it is an offence to feed swill unless it has been properly boiled or treated in a concentration plant.

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MINISTRY OF AGRICULTURE NEWS SERVICE

A WAY TO MORE MILK

Autumn Calvers Score on Year's Output.—The main key to the problem of more winter milk lies in autumn calving. Between December and February, a period of the year when milk is most needed, the spring calver gives an average yield of 109 gallons. The autumn calver, over the same period, raises this figure to 387—an increase of 278 gallons. There should be every inducement for dairy farmers to make the change, for autumn calving and our present ploughing-up policy go hand in hand. It is no exaggeration to say that in face of the decreasing grazing acreage a continuance of spring calving can only lead to a lower national milk output. The switch over, however, cannot be accomplished at once. It is a matter requiring the most careful handling and the strictest attention to every detail. As a first step January-March calving should be aimed at and the second step is to delay the service of the remaining cows from two to four months, bringing their calving time to between June and August. From September to December arrangements will have to be made for heifers to be brought into the herd. This will mean that in July and September the stock bull will be used sparingly. May and June activity will be greater but in August he will be rested. For the other seven months of the year he will be wanted at regular intervals. The ideal herd would calve: 1/3rd in July-September; 1/3rd October-December; 1/3rd January-June. Very few calves should be born during April-June and none in May.

With an autumn calving programme "steaming up" or feeding before calving is important. Lacking the flush of young grass available to the spring calver, cows calving in the autumn must come into milk at a much lower level. Feeds such as kale, green maize or lucerne will be found to be useful during the six weeks or so preceding calving date. Much help will also be obtained by the introduction of a milk recording system. It will show at a glance cows not holding their service and without such knowledge it is almost impossible to make a successful change-over from spring to autumn calving. In addition there is nothing on the farm so sensitive to good and bad milk production as milk records.

Sugar Beet Pulp for Horses.—Dried beet pulp may be used to replace oats in the feeding of horses. Up to half the corn ration can be substituted by pulp. In making the replacement the following equivalents will prove useful. One pound of beet pulp equals 1 lb. of oats, 9/10th lb. of barley or 4/5th lb. of maize. Pigs are also well able to digest and utilise this form of food in their ration and can do so with the efficiency of cattle and sheep. Beet pulp can form up to 20 per cent. of the total ration as a substitute for barley meal or wheatings. Owing to its bulk, however, it should be given in three daily feeds instead of two.

Rye as a Bread Crop.—Rye, although the principal bread corn in Northern Europe, has been the least important cereal in this country. With Government plans for encouraging its growth, however, the acreage under cultivation will increase. Rye is particularly suited to poor, light soils that are not good enough for wheat. In this country the average yield is about 28 bushels. A firm seed bed is required and sowing usually takes place in early autumn at 1½ to 2 bushels per acre. The crop is generally ready for cutting about two weeks before wheat and requires less time in the stook as the straw is dead ripe and dry before the grain is ready for harvest. Winter and Giant rye are the commonest varieties. A spring variety, St. John's Day or Midsummer, has very small grains and excessive tillering powers. It may be shown in June or July to give two cuts or foldings of green fodder, one in autumn and another in spring, after which it is allowed to ripen seed.

Salvaging Damaged Oats.—Oats that have become badly lodged before turning colour may be cut and made into silage. If properly made, the silage will make a fine milk-producing winter fodder.

Yorkshire Fog Now a Select Grass.—Seed mixtures for upland pasture may now contain Yorkshire Fog. A licence, however, must be obtained and the mixture approved before sowing will be allowed on the land specified in the licence. The grass can be very effective in renovating poor hill and moorland grassland. Previously it was an offence to sow a mixture containing more than 5 per cent. of Yorkshire Fog. Copies of the Amending Regulations (S.R. & O. 1942, No. 1200) can be obtained from H.M. Stationery Office, York House, Kingsway, London, W.C.2, or through any bookseller ; price 1d. net. Applications for information on the granting of licences should be addressed to the Ministry of Agriculture and Fisheries, Linden Hall, Bournemouth.

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Binding Cases for I.A.B. Journals.—The Central Sales Branch, Imperial Agricultural Bureaux, Agricultural Research Building, Penglais, Aberystwyth, Wales, is now in a position to supply binding cases for any of the undermentioned journals of the Bureaux, at the price of 3s. 6d. per case. Orders and requests for further information should be sent to the Central Sales Branch at the above address. Where colour is not stipulated, a black cloth will be used. Enquiries regarding complete binding will also be dealt with, as arrangements have now been made for such work to be done at the price of about 7s. 6d. per volume.

Animal Breeding Abstracts	Herbage Abstracts
Dairy Science Abstracts	Plant Breeding Abstracts
Forestry Abstracts	Soils and Fertilisers
Helminthological Abstracts	Veterinary Bulletin
Horticultural Abstracts	

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. . . Fortunately science has no territorial boundaries, and therefore this country has largely profited from the knowledge acquired abroad, but it is not worthy of a great nation that it should have to depend on the crumbs that fall from Continental tables. . . . Governments, at least in this country, seldom do anything without pressure or anticipation of public approval, and it is, therefore, to be hoped that those who can speak for agriculture will use their influence to obtain for the Veterinary Colleges financial support similar to that which has long been given to institutions devoted to teaching other branches of science.—Sir John M'Fadyean, The William Dick Oration. *J. comp. Path.*, 1923.

CORRESPONDENCE

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

The views expressed in letters addressed to the Editor represent the personal view of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

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INTRATRACHEAL MEDICATION IN PARASITIC BRONCHITIS

Sir,—The dictum "Practice makes perfect," like most of our proverbs, contains a world of truth, but does not contain all the truth; although a trainer of thoroughbred horses may display an amazingly keen judgment over form, a judgment far better than that of ordinary laymen, yet is he subject to occasional error—as some of us have found to our cost: likewise the skill of a veterinary clinician in gauging the progress of a disease is an example of practical perfection only to be wondered at by the laboratory investigator. Nevertheless, this faculty for arriving at a correct conclusion from ordinary observation, without the employment of controls, is far from infallible, and in the matter of response to drug treatment may be very prone to error.

The therapeutical field is doubtless a difficult one for the operation of human judgment. Perhaps, on account of the numerous complications that are concerned in the progression of an epidemic of disease, coupled with the occurrence of spontaneous cure, the human mind loses count, and the balance of judgment is upset. Herein, no doubt, lies the patent-drug manufacturer's wisdom. He knows that a coloured "abortion cure," made up largely of brown sugar and shoe polish, may appear to arrest an epidemic of abortion if employed at the height of the aborting phase; and that a chance expulsion of a worm, or, in fact, any result other than markedly increased disease, or death, may be ascribed to the beneficial action of an anthelmintic nostrum. The lives of these people, however, are continually haunted by the spectre of the "controlled experiment," and the two "cures" to which reference has just been made disappeared in the face of a controlled experiment carried out by United States Government Veterinarians, as did, also, the prospect of wealth to the perpetrators of the swindle.

Comparatively little has been done to probe the efficacy of intratracheal medication in parasitic bronchitis, but whoever cares to peruse the existing reports will find considerable differences of opinion and will be surprised that so few controlled experiments have indicated anthelmintic action or a cure.

Experimentation on a wider scale is clearly indicated, and that such has not previously been carried out is a result of the difficulties of procuring suitable subjects. The helminthologist works at an enormous disadvantage in being unable to grow his parasites conveniently in the laboratory, and so is often forced to await the opportunity of experimentation in the field. The farmer's very natural objection to leave adequate untreated controls to sicken and possibly to die is, however, a major difficulty here, and for some eighteen months the department of parasitology in this laboratory has been endeavouring, without success, to find a suitable outbreak of parasitic bronchitis in cattle in which to carry out a properly controlled test with phenothiazine. Until some such trial has been carried out, on an extensive scale, or until a number of small trials have been carried out—which amounts to the same thing—we can only reckon on *opinion* based on uncontrolled observations: it has been one of my objects to collect as much of this opinion as possible, and my impression up to date is that although some practitioners hold that intratracheal medication is of benefit, a majority are either doubtful, or hold it to be of no value.

E. L. Taylor.

The Veterinary Laboratory,
Ministry of Agriculture and Fisheries,
Weybridge.

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HAEMORRHAGIC GASTRO-ENTERITIS AND STUTTGART DISEASE, AND THE INCIDENCE OF ORAL DISEASE IN GREYHOUNDS

Sir,—In the discussion following J. J. Davies' paper on "Canine Nutrition" in to-day's (August 22nd, 1942) issue of *The Veterinary Record*, Mr. W. Hamilton Kirk is reported as saying that ". . . in many ways acute Stuttgart disease was scarcely to be differentiated from the disease they called haemorrhagic gastro-enteritis." The term haemorrhagic gastro-enteritis presumably refers to the shock-like syndrome, encountered in greyhounds and other breeds, which is characterised by the presence of blood in the alimentary tract—leading to the vomition or passage *per anum* of blood—and which may result in rapid death or in relatively quick recovery; its *post-mortem* features include a congested intestinal mucosa. This syndrome does not simulate the published accounts of canine blacktongue, or other vitamin B_2-complex deficiencies of the dog nor, so far as I am aware, does it resemble the canine leptospiroses reported from the Continent; it is encountered quite frequently in and around North London, and was, I believe, investigated by Professors J. G. Wright and Tom Hare during their time at the Royal Veterinary College.

I have never been fortunate enough to witness a case of so-called "Stuttgart disease," such as has been mentioned to me by practitioners and others in various parts of Scotland and the North of England, and which appears to be characterised by marked degenerative changes of the oral mucosa; it is said sometimes to assume epizoötic proportions, and has a high mortality rate. I feel sure that this so-called "Stuttgart disease" is distinct from the not-very-aptly designated haemorrhagic gastro-enteritis: would someone practising in the North be so kind as to furnish a clinical account of it? Even if suitable reports have already been published, I feel that an adequate account would be of considerable value, and would serve to eliminate much current confusion. Moreover, it would be of interest to know whether this disease is related to the "Stuttgart disease" which Dr. J. T. Edwards, during the same discussion, stated as having been common in India.

Mr. Kirk is reported to have made a further point of interest, which he himself may be able to corroborate, *viz.*, ". . . It was obvious to all who had experience of these animals [greyhounds] that they suffered badly from pyorrhoea." To judge from one of his papers, Mr. Kirk commendably keeps clinical records which are suitable for analysis: can he provide evidence that pyorrhoea and other forms of oral disease are commoner in greyhounds than in other breeds?

I am, Sir,
Your obedient Servant,
Alastair N. Worden.

St. John's College,
Cambridge.
August 22nd, 1942.